

What is claimed is:

- 1    1. A metal oxide semiconductor (MOS) varactor device comprising:  
2        a MOS varactor device having a source and a drain connected to each other,  
3                and a back gate, electrically separate from the source and drain, and  
4                connected to a circuit common mode point.
- 1    2. A varactor device according to claim 1, wherein the common mode point is  
2    referenced to a circuit supply voltage.
- 1    3. A varactor device according to claim 1, wherein the device is part of a voltage  
2    controlled oscillator (VCO).
- 1    4. A varactor device according to claim 1, wherein the device is part of an LC  
2    tank circuit.
- 1    5. A varactor device according to claim 1, wherein the device is an nMOS device.
- 1    6. A varactor device according to claim 1, wherein the device is a pMOS device.
- 1    7. A voltage controlled oscillator (VCO) comprising:  
2        a resonant tank circuit for creating a radio frequency (rf) output signal; and  
3        a metal oxide semiconductor (MOS) varactor for controlling the resonant  
4                frequency of the tank circuit, the varactor having a source and a drain  
5                connected to each other, and a back gate, electrically separate from the  
6                source and drain, and connected to a circuit common mode point.
- 1    8. A VCO according to claim 7, wherein the common mode point is referenced to  
2    a circuit supply voltage.

- 1    9. A VCO according to claim 7, wherein the device is part of a voltage controlled  
2    oscillator (VCO).
- 1    10. A VCO according to claim 7, wherein the device is part of an LC tank circuit.
- 1    11. A VCO according to claim 7, wherein the device is an nMOS device.
- 1    12. A VCO according to claim 7, wherein the device is a pMOS device.